

```
-- =====  
-- 1. CREATE DATABASE SCHEMA  
-- =====
```

```
create database Company;
```

```
CREATE TABLE Employee (  
    Fname VARCHAR(50),  
    Lname VARCHAR(50),  
    SSN VARCHAR(20) PRIMARY KEY,  
    BDATE DATE,  
    Address VARCHAR(200),  
    Sex CHAR(1),  
    Salary DECIMAL(10,2),  
    Superssn VARCHAR(20),  
    Dno INT,  
    FOREIGN KEY (Superssn) REFERENCES Employee(SSN)  
);
```

```
CREATE TABLE Department (  
    Dname VARCHAR(50),  
    DNum INT PRIMARY KEY,  
    MGRSSN VARCHAR(20),  
    MGRStartDate DATE,  
    FOREIGN KEY (MGRSSN) REFERENCES Employee(SSN)  
);
```

```
CREATE TABLE Project (  
    Pname VARCHAR(50),  
    Pnumber INT PRIMARY KEY,  
    Plocation VARCHAR(100),  
    City VARCHAR(50),  
    Dnum INT
```

```
= CREATE TABLE Project (  
    Pname VARCHAR(50),  
    Pnumber INT PRIMARY KEY,  
    Plocation VARCHAR(100),  
    City VARCHAR(50),  
    Dnum INT,  
    FOREIGN KEY (Dnum) REFERENCES Department(DNum)  
);
```

```
= CREATE TABLE Works_for (  
    ESSN VARCHAR(20),  
    Pno INT,  
    Hours INT,  
    PRIMARY KEY (ESSN, Pno),  
    FOREIGN KEY (ESSN) REFERENCES Employee(SSN),  
    FOREIGN KEY (Pno) REFERENCES Project(Pnumber)  
);
```

```
= CREATE TABLE Dependent (  
    ESSN VARCHAR(20),  
    Dependent_name VARCHAR(100),  
    Sex CHAR(1),  
    Bdate DATE,  
    PRIMARY KEY (ESSN, Dependent_name),  
    FOREIGN KEY (ESSN) REFERENCES Employee(SSN)  
);
```

```
ALTER TABLE Employee ADD FOREIGN KEY (Dno) REFERENCES Department(DNum);
```

```
-- =====  
-- 2. INSERT INITIAL DATA  
-- =====
```

```
INSERT INTO Department VALUES ('DP1', 10, NULL, '2005-01-01');  
INSERT INTO Department VALUES ('DP2', 20, NULL, '2006-03-01');  
INSERT INTO Department VALUES ('DP3', 30, NULL, '2006-06-01');
```

```
INSERT INTO Employee VALUES ('Ahmed', 'Ali', '112233', '1965-01-01', '15 Ali fahmy St.Giza', 'M', 1300, NULL, 10);  
INSERT INTO Employee VALUES ('Kamel', 'Mohamed', '223344', '1970-10-15', '38 Mohy el dien abo el Ezz St.Cairo', 'M', 1800, '321654', 10);  
INSERT INTO Employee VALUES ('Hanaa', 'Sobhy', '123456', '1973-03-18', '38 Abdel Khalik Tharwat St. Downtown.Cairo', 'F', 800, '223344', 10);  
INSERT INTO Employee VALUES ('Amr', 'Omran', '321654', '1963-09-14', '44 Hilopolis.Cairo', 'M', 2500, NULL, NULL);  
INSERT INTO Employee VALUES ('Noha', 'Mohamed', '968574', '1975-02-01', '55 Orabi St. El Mohandiseen.Cairo', 'F', 1600, '321654', 20);  
INSERT INTO Employee VALUES ('Edward', 'Hanna', '512463', '1972-08-19', '18 Abaas El 3akaad St. Nasr City.Cairo', 'M', 1500, '321654', 30);  
INSERT INTO Employee VALUES ('Mariam', 'Adel', '669955', '1982-06-12', '269 El-Haram st. Giza', 'F', 750, '512463', 20);  
INSERT INTO Employee VALUES ('Maged', 'Raouf', '521634', '1980-04-06', '18 Kholosi st.Shobra.Cairo', 'M', 1000, '968574', 30);
```

```
UPDATE Department SET MGRSSN = '223344' WHERE DNum = 10;  
UPDATE Department SET MGRSSN = '968574' WHERE DNum = 20;  
UPDATE Department SET MGRSSN = '512463' WHERE DNum = 30;
```

```
-- Insert Projects
```

```
INSERT INTO Project VALUES ('AL Solimaniah', 100, 'Cairo_Alex Road', 'Alex', 10);  
INSERT INTO Project VALUES ('Al Rabwah', 200, '6th of October City', 'Giza', 10);  
INSERT INTO Project VALUES ('Al Rawdah', 300, 'Zaied City', 'Giza', 10);  
INSERT INTO Project VALUES ('Al Rowad', 400, 'Cairo_Faiyom Road', 'Giza', 20);  
INSERT INTO Project VALUES ('Al Rehab', 500, 'Nasr City', 'Cairo', 30);  
INSERT INTO Project VALUES ('Pitcho american', 600, 'Maady', 'Cairo', 30);
```



```

INSERT INTO Project VALUES ('Al Rowad', 400, 'Cairo_Faiyom Road', 'Giza', 20);
INSERT INTO Project VALUES ('Al Rehab', 500, 'Nasr City', 'Cairo', 30);
INSERT INTO Project VALUES ('Pitcho american', 600, 'Maady', 'Cairo', 30);
INSERT INTO Project VALUES ('Ebad El Rahman', 700, 'Ring Road', 'Cairo', 20);

```

-- Insert Works\_for relationships

```

INSERT INTO Works_for VALUES ('223344', 100, 10);
INSERT INTO Works_for VALUES ('223344', 200, 10);
INSERT INTO Works_for VALUES ('223344', 300, 10);
INSERT INTO Works_for VALUES ('112233', 100, 40);
INSERT INTO Works_for VALUES ('968574', 400, 15);
INSERT INTO Works_for VALUES ('968574', 700, 15);
INSERT INTO Works_for VALUES ('968574', 300, 10);
INSERT INTO Works_for VALUES ('669955', 400, 20);
INSERT INTO Works_for VALUES ('223344', 500, 10);
INSERT INTO Works_for VALUES ('669955', 700, 7);
INSERT INTO Works_for VALUES ('669955', 300, 10);
INSERT INTO Works_for VALUES ('512463', 500, 10);
INSERT INTO Works_for VALUES ('512463', 600, 25);
INSERT INTO Works_for VALUES ('521634', 500, 10);
INSERT INTO Works_for VALUES ('521634', 600, 20);
INSERT INTO Works_for VALUES ('521634', 300, 6);
INSERT INTO Works_for VALUES ('521634', 400, 4);

```

-- Insert Dependents

```

INSERT INTO Dependent VALUES ('112233', 'Hala Saied Ali', 'F', '1970-10-18');
INSERT INTO Dependent VALUES ('223344', 'Ahmed Kamel Shawki', 'M', '1998-03-27');
INSERT INTO Dependent VALUES ('223344', 'Mona Adel Mohamed', 'F', '1975-04-25');
INSERT INTO Dependent VALUES ('321654', 'Ramy Amr Omran', 'M', 'M1990-01-26');
INSERT INTO Dependent VALUES ('321654', 'Omar Amr Omran', 'M', '1993-03-30');
INSERT INTO Dependent VALUES ('321654', 'Sanaa Gawish', 'F', '1973-05-16');
INSERT INTO Dependent VALUES ('512463', 'Sara Edward', 'F', '2001-09-15');
INSERT INTO Dependent VALUES ('512463', 'Nora Ghaly', 'F', '1976-06-22');

```

```

-- =====
-- 3. DATA MANIPULATION LANGUAGE (DML)
-- =====

-- 1. Insert personal data to employee table
INSERT INTO Employee VALUES ('John', 'Doe', '102672', '1995-05-15', '123 Main St. Cairo', 'M', 1200, '112233', 30);

-- 2. Insert friend's data (with NULL salary and supervisor)
INSERT INTO Employee VALUES ('Jane', 'Smith', '102660', '1994-08-20', '456 Oak Ave. Giza', 'F', NULL, NULL, 30);

-- 3. Insert new department "DEPT IT"
INSERT INTO Department VALUES ('DEPT IT', 100, '112233', '2006-11-01');

-- 4. Move Noha Mohamed to be manager of department 100
-- a. Update Noha's record in department table
UPDATE Department SET MGRSSN = '968574', MGRStartDate = '2006-11-01' WHERE DNum = 100;

-- b. Update my record to be department 20 manager
UPDATE Department SET MGRSSN = '102672', MGRStartDate = CURRENT_DATE WHERE DNum = 20;
UPDATE Employee SET Dno = 20 WHERE SSN = '102672';

-- c. Update friend to be supervised by me
UPDATE Employee SET Superssn = '102672' WHERE SSN = '102660';

-- 5. Delete Kamel Mohamed's data (handle dependencies first)
-- Transfer his supervisees to the friend
UPDATE Employee SET Superssn = '102660' WHERE Superssn = '223344';

-- Delete his dependents
DELETE FROM Dependent WHERE ESSN = '223344';

```



```
-- Remove him from projects
DELETE FROM Works_for WHERE ESSN = '223344';

-- Update department manager if needed
UPDATE Department SET MGRSSN = '102660' WHERE MGRSSN = '223344';

-- Finally delete the employee
DELETE FROM Employee WHERE SSN = '223344';

-- 6. Upgrade my salary by 20%
UPDATE Employee SET Salary = Salary * 1.2 WHERE SSN = '102672';
```

```
-- =====
-- 4. QUERIES
-- =====
```

```
-- 1. Display all the employees Data
```

```
SELECT * FROM Employee;
```

```
-- 2. Display employee First name, last name, Salary and Department number
```

```
SELECT Fname, Lname, Salary, Dno FROM Employee;
```

```
-- 3. Display all projects names, locations and the department responsible
```

```
SELECT P.Pname, P.Plocation, D.Dname
FROM Project P
JOIN Department D ON P.Dnum = D.DNum;
```

```
-- 4. Display employee full name and annual commission (10% of annual salary)
```

```
SELECT
    CONCAT(Fname, ' ', Lname) AS "Full Name",
    (Salary * 12 * 0.10) AS "ANNUAL COMM"
FROM Employee
```

-- 4. Display employee full name and annual commission (10% of annual salary)

```
SELECT
    CONCAT(Fname, ' ', Lname) AS "Full Name",
    (Salary * 12 * 0.10) AS "ANNUAL COMM"
FROM Employee
WHERE Salary IS NOT NULL;
```

-- 5. Display employees Id, name who earn more than 1000 LE monthly

```
SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
FROM Employee
WHERE Salary > 1000;
```

-- 6. Display employees Id, name who earn more than 10000 LE annually

```
SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
FROM Employee
WHERE (Salary * 12) > 10000;
```

-- 7. Display names and salaries of female employees

```
SELECT CONCAT(Fname, ' ', Lname) AS Name, Salary
FROM Employee
WHERE Sex = 'F';
```

-- 8. Display department id, name managed by manager with id 968574

```
SELECT DNum, Dname
FROM Department
WHERE MGRSSN = '968574';
```

-- 9. Display IDs, names and locations of projects controlled by department 10

```
SELECT Pnumber, Pname, Plocation
FROM Project
WHERE Dnum = 10;
```